FAA AVIATION NEWS

FEBRUARY 1968

COVER

When the snow flies, pilot-skiers head for white open spaces. For what it takes to fly safely over snow-blanketed mountains, see page 8.

FAA AVIATION NEWS

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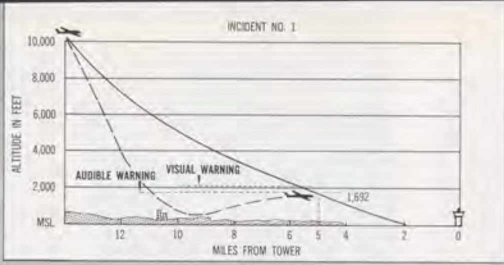
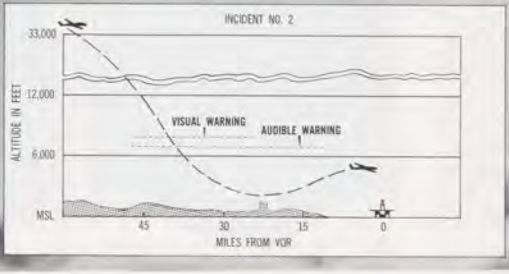




ALTITUDE WARNING DEVICE

A warning device that would alert pilots when they are approaching or deviating from a pre-selected altitude has been recommended as standard equipment in all civil jet aircraft, in a notice of proposed rule making published by the Federal Aviation Administration.

The rule would apply to general aviation as well as air carrier jets, and would go into effect 18 months after adoption by FAA.

The primary purpose of this device would be to prevent pilots from climbing through or descending below an assigned or planned altitude. A secondary purpose would be to alert the pilot whenever his aircraft strays significantly from his predetermined altitude of cruise.

The type warning device approved of by FAA must provide both a visual and an audible warning signal in the cockpit. A visual warning must flash on the instrument panel when the aircraft reaches a point between 700 and 1,500 feet from a given altitude—the exact distance to be selected by the operator in advance. An audio signal would sound an alarm to the pilot at a point between 200 and 800 feet of the given altitude.

The visual signal must remain visible at least until the audible warning is sounded.

"Altitude awareness" has been a recognized problem, especially for pilots of high speed aircraft, for many years. However, the magnitude of the problem has increased tremendously in the last several years, with the growing popularity of jet aircraft on traffic-saturated airways, FAA believes, and it must be dealt with promptly, in the interests of continued air safety.

The FAA decision on altitude warning devices was reached after a careful examination of recently reported air incidents involving inadvertent flight beyond safe altitude courses.

One typical incident involved a large jet preparing to land, in instrument weather, at an airport where the glide slope interception altitude was 1,692 feet. Because of altitude mismanagement in the cockpit, the aircraft actually descended from 3,000 feet to 180 feet MSL at a point more than ten miles out from the runway threshold. The terrain in this area was approximately 120 feet MSL, so that a further descent would have caused the aircraft to crash into the ground.

Another typical incident cited was that of a jet which had been cleared by Air Traffic Services to descend from a cruising altitude of 33,000 feet to 6,000 feet at the 30 mile DME (distance measuring) fix from the VOR. The co-pilot, who was flying the aircraft, used reverse thrust during his descent. The captain and the flight engineer, as well as the co-pilot, apparently misread their instruments by at least 10,000 feet, because by the time the aircraft pulled up, it was virtually on the ground (the flight recorder indicated a reading of "sea level").

Both incidents were clearly attributable to lack of altitude awareness, and both might have been prevented, FAA believes, by means of a properly functioning altitude warning device. While conceding that the introduction of additional visual and audible warning signals into the cockpit adds to the pilot's burden, as well as to the cost of operation, FAA believes that the resultant increase in air safety will outweigh these considerations.

FAA has agreed to accept a device that is either independent or an integral part of the aircraft, so long as the basic altimetry system is not affected. A number of altitude warning devices now on the market, costing between $1,700 and $2,200 meet the requirements of the proposed rule.

An advance notice of proposed rulemaking on altitude warning devices for various type aircraft was published a year ago, and the present action reflects a careful study of comments from all sections of the aviation industry. The consensus of opinions was that the requirement should be limited to pure jet aircraft, that both visual and audible signals were needed, and that a lead time, before installation, of between one and three years should be allowed.

The final opportunity for commenting on the proposed rule (Notice 67-53) will close on February 19, 1968. Comments should be sent to FAA Rules Docket, 800 Independence Ave., SW, Washington, D.C. 20590. ■

where did all the blue sky go?

Transcript of an FAA flight assist to a cloud-covered student pilot

The typical nightmare of a flying instructor is the thought of a student pilot on his first solo cross-country flight becoming caught in clouds, over mountainous terrain, aircraft and instruments icing up, disorientation setting in, perhaps hypoxia as well . . .

All of this actually happened to a student pilot in the high desert country over Redmond, Ore. What provided a happy ending to a living nightmare was the ability of the pilot to overcome panic sufficiently to follow radio instructions from the FAA Flight Service Station below him. In addition, he was lucky that his Mayday call was handled by an air traffic control specialist who also happened to be a veteran flight instructor experienced in his aircraft and in handling students under pressure.

The adventure began on a fine winter morning when the student pilot, with 35 hours of flying time, left Aurora, Ore., in an *Aircoupe* on his first solo cross-country hop. He had laid out a three-legged, 300 mile triangular course, with the first stop at Redmond, to the southeast, the second at The Dalles to the north, and then back to Aurora.

After an uneventful flight in clear skies to Redmond, Ore., the pilot refueled his aircraft, got a weather briefing, checked his airplane, and took off at 3:00 p.m. In the short span of time between his briefing and his departure, a cold front moved into the area with unusual speed. Only ten minutes north of Redmond, flying at 3,900 feet under a cloud ceiling, the pilot noticed new cloud formations beginning to surround him. By the time he had reversed direction, his return path was also blocked; he was completely enclosed in clouds. With his altimeter showing 3,900 feet, the knowledge that there were peaks over 7,000 feet in the immediate vicinity, and that the Cascade Range, a few dozen miles to the west, towered over 12,000 feet, was cause for alarm.

Remembering that he had seen a hole in the ceiling to the northwest, the pilot attempted to climb out of the weather. By the time he realized that the pursuit of blue sky was futile, his pitot tube had iced up and neither his airspeed indicator nor his altimeter was reliable. The latest reading was 4,400 feet, at a time when (unknown to the pilot) he must have been nearly 15,000 feet above the ground.

The Redmond Flight Service Station that picked up his Mayday quickly established the aircraft to be on a 315 degree bearing from Redmond. The Air Route Traffic Control Center at Seattle was contacted, and immediately granted a protective block of the airspace involved. Then FSS specialist John Harrington, manning the Direction Finder at Redmond FSS, took on the task of talking the pilot down. Twenty years of professional flight instruction experience helped him to steady the worried pilot and guide him through the clouds back to the airport. A transcript of the radio transmissions follows:

The direction finder position at Redmond, Ore., FSS where John B. Harrington (below) fought a tight-lipped battle with death to bring a student pilot safely to earth.

"I'm right over the airport" was the pilot's exultant cry when he broke out of dense cloud cover after Harrington's calm voice led him down from 15,000 feet.

HARRINGTON: . . . three-two Foxtrot take it easy, take it easy. We have everything under control. Roughly, what does your magnetic compass read?

PILOT: One nine zero at 4,400 feet.

HARRINGTON: Turn left; you're going to pass west of the airport. Turn left to heading of one five zero. Do not try to pin it down accurately; just get a rough heading. A little bit of left rudder, a little bit of left aileron. Your horizon will show about a 15° bank.

PILOT: I'm on a heading of one five zero degrees.

HARRINGTON: OK. You're looking real good. Three-two Foxtrot, Redmond Radio. What is your altitude now?

PILOT: 4,500 feet.

HARRINGTON: You might turn a little more left to a heading of about one three zero. Go ahead . . .

PILOT: I'm on a heading of one three zero . . .

HARRINGTON: You're looking real good, heading right for the airport.

PILOT: Lost heading trying to get it right. I'll have to circle to get myself squared away.

HARRINGTON: OK. Suggest you turn right to heading of one five zero as soon as possible. Just remain calm, relax. Do not grip that wheel, just lay your hand on it easy and watch your artificial horizon.

PILOT: I'm on a heading of 150 now.

HARRINGTON: OK, You're looking real good. We have you north of the airport but very close in. Say again your heading.

PILOT: Heading of one one zero, altitude 4,400 feet.

HARRINGTON: OK. Maintain 4,500 feet. You should be on a heading of one five five. Go ahead . . .

PILOT: 4,400 feet, will be 155° in a minute.

HARRINGTON: OK. Three-two Foxtrot. What is your heading now?

PILOT: One five five.

HARRINGTON: All right, let's go more to the right, to a heading of 180°. You're getting real close to the airport.

PILOT: To the right?

HARRINGTON: Yes, make a right turn to a heading of 180°

PILOT: Heading 180, 4,400 feet.

HARRINGTON: OK. You're looking good. You might head just a little to your left, about 170°. Give me a bark on that heading of one seven zero.

PILOT: One seven zero.

HARRINGTON: OK, looking good. Three-two Foxtrot you can turn left to a heading of about one six five degrees.

PILOT: Heading 165 at 4,100 feet.

HARRINGTON: OK. Roll her level and maintain that heading.

PILOT: One four zero now.

HARRINGTON: OK. Maintain that heading. You're getting real close. Have you been able to get any glimpses of the ground yet?

PILOT: Negative. I'm right at the top of the cloud level. I'm getting a glimpse of the blue here. In fact I'm above it now.

HARRINGTON: Say again.

PILOT: I'm above the clouds now.

HARRINGTON: You're in the clear now, is that right?

PILOT: Right.

HARRINGTON: OK. We'll have you over the airport very shortly and we'll send you right down through.

PILOT: OK. I'm going to have a real tough time seeing out 'cause I'm all fogged in here.

HARRINGTON: Have you got ice on the windshield?

PILOT: I've got a little bit of ice everywhere.

HARRINGTON: How's your airspeed holding up?

PILOT: Maintaining 2,200 and 70 mph.

HARRINGTON: OK, when your airspeed starts to fall off, don't be alarmed. As long as you keep your rpm up. If your airplane starts getting loggy on the controls, keep your nose down a little bit. But don't trust that airspeed too much, because the pitot tube can ice up and give you false readings.

PILOT: I'm doing fine on the controls; they're responding well. I've pushed in carb heat and rpms are up to 2,400. Maintaining heading at 4,200.

HARRINGTON: Roger, we have you over the airport at this time. Put on full carburetor heat, close your throttle full off, and keep your horizon level. Keep your airspeed within bounds.

PILOT: On a heading of one four zero, at 4,100, carburetor heat on, 2,100 rpms.

HARRINGTON: OK. Back your throttle clear off. There are about 1000 feet of clouds to come through, then you'll be in the clear.

PILOT: I'm going to have to change heading. I'm in the clouds now, descending . . .

HARRINGTON: OK. Close your throttle clear off. Close your throttle clear back.

PILOT: Throttle clear back.

HARRINGTON: OK. You look real good. You'll be in the clear here, any minute. Three-two Foxtrot. You might give me a call when your altitude reads 4,000.

PILOT: My altimeter's reading 2,700.

HARRINGTON: That's 3,700, is that correct?

PILOT: 2,700 feet. Large hand on the two, sweeping hand now also on the two, am I reading correctly?

HARRINGTON: Negative, but I think your pitot tube is probably iced up. The field elevation is higher than that. You cannot be that low. You cannot be that low, so just come on down, 'til you break into the clear.

PILOT: OK. I can't see a thing . . . I'm indicating a heading of one five zero.

HARRINGTON: OK, you might open your canopy if possible so you can see out. You might be in the clear right now. Three-two Foxtrot, go head.

PILOT: I'm still in the snow.

HARRINGTON: You're still in the snow . . . is that right? Can you see the ground now?

PILOT: Negative, but I'm getting some broken clouds. The pitot tube is apparently iced up, I'm reading 800 now.

HARRINGTON: OK, let's come around to the right. Let's come around to the right to a heading of 200°.

PILOT: . . . two two zero?

HARRINGTON: Two zero zero degrees.

PILOT: I'm on 200°.

HARRINGTON: OK. Three-two Foxtrot, what does your altitude say now?

PILOT: Three hundred and fifty feet.

HARRINGTON: Do you have your canopy open so you can see outside?

PILOT: Yes.

HARRINGTON: OK, can you see the ground yet?

PILOT: Negative.

HARRINGTON: OK. Keep coming down, keep on coming down. Three-two Foxtrot, suggest you continue your turn to the right to 320°.

PILOT: Have a heading of 320°—I'm on three two zero.

HARRINGTON: OK. Can you see the ground yet?

PILOT: Negative.

HARRINGTON: Maintain a heading of 320°.

PILOT: I'm on that heading now.

HARRINGTON: OK. Looking good.

PILOT: Three four three degrees, open canopy. Cold and wet.

HARRINGTON: Do you have the ground in sight?

PILOT: YES, I HAVE! I'M RIGHT OVER THE AIRPORT!

HARRINGTON: Good deal! About what is your altitude?

PILOT: Guess about 2,500 feet, anyway. I'm indicating 60, no 600.

HARRINGTON: Disregard your altimeter there, disregard your airspeed also. Fly her by feel. Runway 4, wind 050 at 8 knots. Go ahead . . .

PILOT: All right. Give you a call when I get there. I'm mighty exhausted.

HARRINGTON: We've got some hot coffee waiting for you.

A few minutes later a pale, chilled, but happy student pilot was knocking at the door of the Redmond Flight Service Station, having landed his aircraft safely on the indicated runway. He wisely elected to remain overnight at Redmond and wait for the weather to clear—and his nerves to settle down. The next morning, still somewhat shaky, he asked his benefactor of the day before, FAA air traffic specialist John Harrington, to help him with his preflight check.

Harrington smilingly refused. It's your airplane to fly, he told the student. When you're ready to fly it, you'll be able to preflight it yourself.

The student agreed—and did.

L. D. G.

What's Up Front

PROPELLERS

The first part of this article (Jan. 1968) traced the development of various propeller types and explained how they operate. In this issue propeller care and maintenance is discussed from the pilot's point of view.

Prop preflight includes twisting and bending blades to detect looseness. Check for nicks, cuts, bruises and security of prop spinner mounting.

There is no single item on a preflight checklist more important than any other. Each is a contribution to safety—but not all get the attention they deserve. Much like tires, which frequently are favored with little more than a worried glance, the propeller is commonly dismissed with a quick scrutiny as the pilot rounds the nose enroute to other points of interest on his preflight examination.

In addition to this neglect, propellers are subject to terrific physical stress and strain by the nature of their operation. Nevertheless, propellers are rarely cited as the probable cause in General Aviation aircraft accidents. In 1966 there were only 31 accidents reported in which propeller failure was listed among *possible* causes. About one-third of these involved difficulty with the pitch mechanism, another third were attributed to the propeller itself, and the remainder included problems with nose cones, fairings and automatic and manual pitch control mechanisms. Failures in the aircraft's hydraulic and electrical system, which affect propeller function, are also included in the 31 accidents tallied.

The composition of causal factors in propeller mishaps changed somewhat in the first nine months of 1967. At the end of September, there were 22 propeller-related accidents, 10 of which involved blade failure. Three were attributed to manual propeller controls, and the others to miscellaneous factors such as those listed in the preceding paragraph.

Unless a pilot is a licensed aircraft and powerplant mechanic, there is little he can legally do in maintaining his propeller. There is *much* he can do, for the sake of safety, in checking regularly on its condition. A careful visual and manual examination of the propeller system can very often be the first alarm to a potentially hazardous situation.

Although the overwhelming number of propellers in general aviation are made of aluminum alloy, enough wooden propellers are still flying to merit attention.

Wooden propellers should be inspected for cracks, chips, bruises, scars, warpage, evidence of glue failure and separation of laminations. Damaged metal tips, cuffs and metal stripping along the leading edge, and deterioration of the finish can usually be detected by close scrutiny.

(Directly related to wooden propellers is a minor category known as "composition." These are basically wooden propellers, some with metal cores, others covered with plastic-like finishes, and others made up of a combination of materials. None are in production today.)

When a wooden propeller is removed for any reason, the hub area should be examined carefully for distorted bolt holes, enlarged hub bore and crushed wood fibers around bolt holes. This occurs when moisture enters the holes and swells the fibers. Since the bolts securing the prop to the hub flange will not yield to the expanding wood, some crushing occurs. When the prop dries out, the holes have a tendency to become larger as the crushed fibers are vibrated loose.

Extend prop life by having a mechanic file sharp nicks into shallow depressions.

Propeller bolts should be checked for tightness after the first flight following mounting of a new wood prop, and again after the first 25 hours of operation. Regular inspection time schedules are difficult to prescribe because bolt tightness is affected by moisture changes. Torque values laid down by the manufacturer must be followed.

Preflight inspections should pay close attention to missing or broken safety wire and cotter pins. Neither are to be re-used. Safety wire must always be twisted between nuts. If it is run as a single strand, a break at one point might allow all nuts to work free. (This rule is not peculiar to propeller installations; it applies to all safeties.)

During preflight, the propeller should be gently worked back and forth to reveal any undue looseness. Rough handling, however, must be avoided. Inspect the metal prop tips and leading edge strips for looseness by twisting and wobbling. Running the hand cautiously along the prop surface can disclose loose screws and rivets used to secure these components. Insecure fastening may also be suspected when screw and rivet heads are discolored.

Many wooden propellers have drain holes at either tip. Make sure these drain holes are open, so that centrifugal force will hurl out accumulated moisture. Moisture accumulation can be minimized by moving the prop to a horizontal position when the plane is parked. Moisture trapped in a tip can upset prop balance and also lead to rotting. Lining up wooden (*and* metal) props horizontally when the aircraft is parked is prudent practice because this reduces the possibility of damage in the event the aircraft is upended by a gust of wind, as well as lessens the opportunity for moisture build-up.

Separated laminations are readily visible; a conscientious preflight, particularly after aircraft is taken out of long storage, will turn up incipient separation. If the prop is fabric or plastic covered, a fine line in the covering is a dependable tip-off that a crack exists in the wood below.

Cracks in the fabric or plastic materials covering some types of blades may look harmless, but even the finest hair-line break can admit and trap moisture, with the possible consequence of rotting. The term "dry rot" is a misnomer. All rot starts with moisture.

The same *look, feel* and *twist* rules governing inspection and preflight of wooden propellers apply to metal ones. When damage is located or suspected, the same cautionary note prevails: *only a qualified mechanic is permitted to make propeller repairs or replacement.*

Metal propellers are particularly vulnerable to stone nicks, cuts and bruises. A metal propeller can be damaged even while standing still if struck by stones propelled by the prop wash of a taxiing aircraft. Even small nicks and scratches change the integrity of the blade by setting up stress risers—points where stress forces are magnified because of injury. While nicked and bruised metal blades are commonplace on the flight line, each one should be evaluated periodically by a qualified mechanic.

Most propeller blade failure can be traced to metal fatigue which had its start as a nick or dent. These interrupt the normal parallel stress lines in the metal of the prop blade, causing an abnormal concentration of stress on one point. A crack commonly develops and ultimately, the destruction of the blade follows. Most fatigue failures occur within a few inches of the blade tip, but failure may happen at any point along the blade from the hub outward.

Sometimes failure occurs where it seems least likely—at a point where damage has already been repaired. This might be a case of additional unseen failure already in progress before the repair was made; or the repair may have been done improperly. The pilot may also be lulled into a false sense of security by a repair job that was actually botched. Blade straightening, or repitching, unless it is done under strictly controlled limits can easily disturb the normal stress lines in the metal and can lead to failure.

Most damage of this sort can be neutralized by an FAA certificated mechanic following manufacturer and FAA instructions. Unless the damage is great, the usual procedure consists of little more than careful grinding, sanding or lapping the affected area.

In addition to searching for nicks and dents, a conscientious pilot should examine the entire surface of a metal propeller, including the hub, for corrosion. While corrosion can be *expected* in float planes and in amphibious aircraft operating in salt water, inland aircraft of all kinds are not immune from this kind of damage. Corrosion damage has been traced to wind-blown mist rising from salted highways and adjacent airports. Moreover, highly corrosive vapors are a prime ingredient in the increasing number of smogged-in urban areas dotting the nation.

Another common source of corrosion is perspiration from hands. It is not rare to find finger and palm prints etched into metal blades. In one instance, corrosion was traced to the adhesive used to affix manufacturer's decals to the blades. The potential of this kind of corrosion is easy to imagine, since it has great opportunity to progress undetected behind the decal.

Below, left. Whenever spinner is removed, inspect safeties, signs of excessive oil leakage. Right. In many cases, severely bent props can be repaired but all work must be done by qualified mechanics in accordance with FAA standards.

Once started, the battle against corrosion is never ending. A progressive "infection" that cannot be washed away by water or other solvents, it must be filed or rubbed out by sand paper or emery cloth—by a qualified mechanic.

While scarcely practical for the average pilot, the absolutely ideal method for keeping a propeller free of corrosion would be a daily scrubbing with a soft bristle brush and warm soapy water. After rinsing with clear water, the propeller should be thoroughly dried with clean cloths. Solvents should never be allowed to come into contact with de-icer boots or rubber propeller fairings.

In salt water operation, after each day of flying, the propeller should be thoroughly rinsed with fresh running water, dried and coated with a film of clean engine oil.

Oil streaks emanating from the hub or propeller dome are usually no cause for alarm, unless the leakage obviously is excessive. Wipe blades and the propeller shank clean and run the engine for a few moments, operating the propeller pitch control mechanism. If the oil streaks reappear, have the propeller inspected by a mechanic. The propeller may simply be over-greased, or an oil seal could be worn or damaged.

Propeller de-icing equipment should be included in the regular daily or pre-flight inspection. Check for security of mounting and integrity of the system. The manufacturer's recommendations should be followed to the letter, not only for safety's sake, but also because failure to do so will void the guarantee.

Aside from their attractive appearance, propeller spinners frequently serve the more utilitarian purpose of directing air flow to cool the engine. If your plane is designed for a spinner, do not operate it without one —you could damage the engine. Inspect the spinner for security of mounting, dents or cracks, chafing on the blade shank, and safetying. A cracked spinner should be replaced or repaired because it might disintegrate during rotation, injuring bystanders or damaging the aircraft.

Propeller control linkage may be inspected if there is interference with the normal range of movement. It is a good practice, when you have the cowling up to measure the oil, to notice whether the propeller governor shows signs of oil leakage.

Propellers and propeller control systems in modern aircraft are as safe and well designed as the rest of the plane. The propeller, with its historical antecedent the "air screw," has served man faithfully on land, sea, and in the air since the first windmill pumped water to the surface, over 1,000 years ago. The airman who learns how to watch over it properly will be able to count on its continued, uninterrupted service.

—Frank J. Clifford

SNOW SEASON FLYING

Winter post-flight care: secure tie-downs, top tanks, and cover pitot tube opening.

Famous winter playgrounds such as Aspen, Colorado; Sun Valley, Idaho, and Tahoe, California, once reachable only by tedious combinations of rail, bus and car transportation, are now being flown to by increasing numbers of pilot skiers who like to combine two of their favorite pastimes in one vacation. There is no reason why flying cannot be combined with skiing, but a word of caution must be given: flying to ski means flying into a rugged, thickly wooded, mountainous area, heavily snow-covered (you hope) and possibly beyond radar and OMNI range, with perhaps not even a UNICOM assist to help bring you down.

The summer pilot, used to fair weather flights over familiar landscape, liberally sprinkled with NAVAIDS, is advised to think carefully before committing himself to airlifting his family or friends to the high Sierras. It is more than just a matter of tossing the skis into the airplane and heading for snow.

As a matter of fact getting the skis into the airplane may be the first problem, and it may be insoluble. There are many small aircraft into which you simply cannot cram a half-dozen pairs of seven foot skis. Altering the airplane to accept the skis can have a disastrous effect on trim. If they won't go inside, settle for rentals.

Other problems of immediate concern are the service ceiling of your aircraft, if you are headed for the high mountains of the West, and runway requirements. Major ski resorts of the western mountains have at least 5,000 foot runways available, but if you are flying to a small local resort, with a dirt strip bulldozed out of the mountain slope, you want to make certain you will have enough room to get in—and out, safely.

Are You Ready?

The next consideration is a more personal one: are you, the pilot, prepared to handle all of the piloting and navigational problems that may confront you over mountainous terrain in winter? How much experience have you had navigating through turbulence? How familiar are you with updrafts and downdrafts near high peaks or ridges? Have you ever flown through a snow shower? How is your navigation, when the terrain cuts you off from the OMNI signal? How would you go about making an emergency landing on snow—wheels up, or down? Supposing you got lost in the mountains and your radio failed?

These are the kind of questions that should be faced up to before embarking on a flight to a ski resort. If the preparation is inadequate, you are a potential accident statistic. The fact that you may have hundreds or even thousands of flying hours in your logbook does not automatically qualify you for safe mountain flying in the winter.

Even veteran mountain pilots run into trouble occasionally and are forced down on snow. Whether or not they survive depends largely on how well prepared they are to deal with the hazards of this type of flying. If the airplane and the pilot are properly prepared for the trip, flying to ski can be safe.

One of the best preparations is to make the trip first by commercial carrier, or if necessary by rail and road. This will give you an opportunity to see the airport, judge the surrounding terrain, talk with the airport manager, with FAA personnel and with local pilots. You can also contact the nearest FAA Flight Service Station and pick up some very helpful hints on what you need to know about local navigational aids and hazards. When you know what you are up against, you will have a better idea of how to prepare yourself and your airplane.

Preparation of the airplane is the simpler of the two. Essentially it consists of protecting the engine against subzero temperatures (see FAA AVIATION NEWS, October, 1967—"Cold Weather Preparation"; also FAA Advisory Circular 91-13—"Cold Weather Operation of Aircraft").

For the really bitter cold of the northern Rockies, winter cowl kits are desirable. FAA approval is required for installation of these kits, unless the manufacturer has provided for agency approval. The entire aircraft should be in first-class operating condition, because if there is any time and place when you do not want trouble in the air, it is when ice-covered peaks are reaching up for you.

Many veteran pilots recommend 25 hour periodical engine checks, in addition to the usual 100 hour checks. The additional safety margin makes you feel a lot more comfortable in the cockpit, when you are far away from any emergency field.

Three items not ordinarily carried in the cockpit should be in every aircraft bound for high altitude ski resorts: a *back-up radio, portable oxygen,* and *a survival kit.*

A small "second" radio is probably the cheapest form of life insurance you can obtain for mountain flying. Freezing weather is notoriously hard on batteries, and if yours should fail to the point that your reception or transmission goes out, while you are deep in wilderness territory, you will feel very lonely.

Engine cowl and windshield covers can prevent ice buildup, cut preflight time.

Careless storage of skis and other gear can alter plane's center of gravity.

Portable oxygen is necessary for mountain flying even though the highest point of land on your route may be well under 10,000 feet. You can never predict when cloud formations or turbulance may force you thousands of feet above your planned altitude. The oxygen bottle is standard equipment in virtually all aircraft you see based at ski resorts.

Survival kits are anything but standard, since every individual seems to have his own idea of what is needed, and the weight limitation is always a factor. Bear in mind that many persons who have survived crash landings on snow have not survived the rigors of exposure and hunger that ensued.

Skiers are fortunate, as regards emergency landings on snow, in that they usually have warm outer gear; but a blanket or sleeping bag also comes in very handy if the aircraft cabin is badly damaged, or burned on impact. Ski-boots are great on skis, but awkward on loose snow; one small pair of snowshoes in the cabin may prove to be worth its weight in gold. Matches, a cookpot for melting snow and dried food are bare minimums. Signal flares, a waterproof groundsheet (some are available that fold up no bigger than a cigaret packet and weigh little more), and a first-aid supply are important. The *location* of your survival kit in the cockpit is equally important as its contents: if you can't get it out as fast as you remove yourself from the airplane, and the craft burns, you may have to watch your carefully prepared rations for six weeks in the woods get sadly overcooked.

Preparing the pilot for his flying to ski adventure begins with a thorough briefing on the area he will be flying into. He should pay special attention to the location of the nearest alternate airport, which may lie over a mountain barrier 100 miles distant, to the minimum safe altitude enroute, and the areas where he may be without radio contact. A little practice with landing at unattended airports without benefit of any ground based navigational aids will help give the pilot-skier an understanding of what he may be up against, when he heads for the hills.

One thing he can be fairly certain of is harsh weather—sudden storms, daily turbulence, extremely low temperatures, down to 40° below zero, on the ground. At Jackson Hole, Wyo., for example, last year there was only one day in January when some snow did not fall. Some 25 commercial flights (in a Convair 580) were canceled during that month, because of bad weather. The pilot-skier must be just that: a pilot first, and a skier second. He should keep a constant radio and visual check on the weather, and if it starts closing in, he must not allow the skier in him to overrule his decision to turn back and wait for another day.

Winter Turbulence

Winter turbulence in the mountains is most prevalent during the middle of the day. In many areas, and with many aircraft, it will not be possible to fly high enough to avoid this hazard, but planning a flight in the early morning or in the afternoon will reduce its severity.

Passes leading to resorts are usually fairly well defined but frequent checks should be made, to avoid the risk of following a blind canyon by mistake, and running low on fuel before discovering the error. Some veteran mountain pilots prefer to follow main highways, so that in the event of a forced landing they can be reached quickly by rescuers. Survival time in winter in the high mountains is often a question of hours—or even minutes.

Another habit of mountain pilots worth noting is the use they make of their radio to notify a Flight Service Station of the length of time they expect to be out of radio range, the specific area they will be flying into, and the time that they intend to resume communications. This practice reduces the guesswork about where they may have gone down, if they do not report in time, and launches the search and rescue effort at the earliest possible moment.

Some thought in advance should be given as to emergency landing in snow-covered wilderness. Conditions vary so greatly that no general rule or procedure can be given; advice from local pilots is invaluable. In some areas where you may not be able to find any terrain that is level and open enough to avoid severe impact, you may be advised to go down in the trees—softwoods tend to cushion your arrival better than granite, even with a snow cover.

If you do find an open space, you may have difficulty deciding on whether or not

Winter and summer, density altitude performance is a critical consideration in high altitude operations.

SNOW SEASON FLYING / continued

to lower retractable landing gear. Only experience can teach you to judge the depth of snow sufficiently to decide this question to your best advantage. Apart from ski slopes and tilled land, the higher mountains rarely offer you anything but rocky, stumpy terrain, under that gleaming white surface.

On arriving at winter mountain resorts, let down in extremely cold weather may require more power than normal to provide enough engine heat; and perhaps the extension of flaps, or landing gear to keep the airspeed within limits. Carburetor heat may also be necessary to help vaporize fuel and enrich the mixture.

Safe arrival at a ski resort brings up the problem of protecting the aircraft from the elements of winter. It is a good plan to inquire ahead if a heated hangar is available. If so, you can enjoy any snowfall that comes your way without concern over your airplane.

The pilot who flies his own aircraft to ski should never be in such a hurry to reach the slopes that he neglects his aircraft, since in most cases it will be left out unhangared.

Post-Flight Care

As soon as possible after landing, see that the tanks are filled with the proper grade of clean aviation fuel. This is true even if the aircraft is going into a heated hangar. If the aircraft is to be left outside, put on engine covers and pitot tube covers. If the weather forecast is for snow, or clear and colder, you can save yourself a snow or frost removal job in the morning by using a suitable wing cover.

On departing the resort air field, remember that condensation of water is much more pronounced in winter than in summer. Even if your tanks were topped before you hangared the aircraft, if a half hour or so elapses from roll out to take-off, you had better drain your sumps once more.

Starting an engine in very cold weather, without the help of a pre-heater (or heated hangar) sometimes causes difficulty. There is a tendency to overprime, which may result in flooding and even an engine fire. Another cause of difficult starting is icing on the spark plug electrodes. It is a fairly simple matter to remove the plugs and dry them out indoors.

The winter preflight in frosty areas requires special attention to see that openings to static air and pitot tubes are free of ice. Carburetor intakes and fuel vents should also be inspected carefully. Ice and frozen snow on any portion of the aircraft should be removed completely; otherwise the flow of air over airfoils will be disturbed and control of the aircraft difficult to manage.

Mountain range adjacent to runway can create tricky, unpredictable crosswinds.

To avoid damaging surfaces, it may be necessary to use alcohol or one of the ice-removal compounds sold for this purpose. Ice can freeze the controls as rigidly as gust blocks, so special attention must be given to manipulate all controls before taxiing.

Taxiing an aircraft at a ski resort requires a word of caution: Avoid apparently soft snowbanks on the sides of airport runways. These may be frozen blocks of ice, as many a racked-up aircraft has demonstrated. Operating on wheels in any kind of snow is difficult. Braking action is generally poor—non-existent if taxiing with skis.

Homeward-Bound

Take-off performance in mountain resorts varies significantly according to the temperature. A runway which was easily sufficient for take-off at 30° or 40° below zero, may offer some problems if the temperature shoots up above freezing. A thorough review of density altitude and its applications is in order for all pilots flying to ski. During climbout keep an eye out on head temperature guages, if these have been installed. Carburetor heat may be required if no cowl flaps have been installed. On the other hand if the aircraft has been winterized in such a manner as to restrict cooling airflow, it is possible to overheat the engine at normal climb speeds. If the head temperature nears a critical stage, increase the airspeed or open the cowl flaps, or both.

Homeward-bound, you are now a pilot with some first-hand experience in winter mountain flying, and you have probably learned to respect those pilots who fly the snow ranges day in and day out. You may have also learned that your skier's love of adventure should never clash with your responsibilities in the left hand seat.

Lewis Gelfan

IDENTIFYING FLYING OBJECTS

A sharp rise in the number of general aviation violations of the U.S. Air Defense Identification Zones (ADIZ's) has prompted the Air Defense Command to request alerting of pilots to the FAA regulations covering such flight.

An ADIZ is a block of airspace which runs along the entire coastline of the United States, beginning about 20 miles offshore and extending from sea level upward to infinity. Part 99 of the Federal Aviation Regulations prohibits flight into ADIZ without prior clearance by the nearest appropriate aeronautical authority.

Failure to obtain prior clearance may result in an interception by Air Force jet fighters, a fine as high as $1,000 and a possible revocation of certificate. The great majority (54%) of unauthorized ADIZ penetrations have occurred off the Florida coast, where Air Force intercepts have been averaging nearly one a day.

The Florida area is also currently subject to a Special Federal Aviation Regulation (No. 15—Airman's Information Manual, Part 3). All aircraft operating beyond the land mass between 85°W and 79°30'W and between 24°N and 29°N or overland south of 25°10'N within the described areas must have (1) a flight plan approved in advance by the Defense Command through FAA and (2) a two-way radio capable of monitoring frequencies specified by air traffic control. This regulation may be made applicable to the entire land mass as well, by NOTAM.

The problem is accentuated in Florida by the presence of numerous attractive islands only a few miles off shore, which attract as many as 1,000 general aviation aircraft a day during the winter season. The island of Bimini, for example, is 50 miles away—scarcely a half-hour's flight. Each unauthorized flight may provoke an Air Defense Command *scramble*, as two or more fighter jets race to identify the target.

Normal intercept procedure calls for an element leader and a wingman to approach the intercepted aircraft from astern. While the wingman takes a surveillance position about 4,000 feet overhead, the element leader maneuvers alongside as close as may be required for identification. On receiving a radio clearance from the mission director, he will break away in a shallow dive, and both pilots return to base.

When the scramble horn blares, these Air Defense Command crews race for their F-102 Delta Daggers to intercept and identify an unknown flying object.

Ordinarily communication either by radio or otherwise is not required between the intercepted plane and the interceptor. However, if an Air Force Fighter jet positions itself ahead of your light plane and wags its wings, you had better follow on meekly as best you can, even if it means missing the morning sun on Lucaya. The Air Force pilots have orders not to deliberately frighten civilian flyers, but the sudden appearance of a heavily armed jet off your starboard wing is not the best thing in the world for high blood pressure.

Continuous radar scanning of ADIZ results in a scramble and intercept whenever an unidentified blip appears on the radar scope in the identification zone usually about 20 miles offshore. Unnecessary scrambles, which could have been prevented by obtaining proper clearances, cost the government as much as $1,500 each. They also expose military pilots to needless risk. Flights inbound (which account for most intercepts) from the Bahamas or the Florida Keys must also comply with FAR 99 and SFAR 15. Any Bahamian Aeronautical Information Service or control tower will accept flight plans and transmit them to FAA for approval.

Filing a flight plan to penetrate an ADIZ is simplicity itself—the pilot can do it in person in a flight service station or he can call in the data free of charge from one of the many phones leased by FAA at a number of airports for that purpose. FAA recommends filing an hour before planned departure because the plan must be filtered through the air route traffic control center, passed on to the Air Force, approved and passed back down to the pilot.

The restrictions placed upon the pilot are modest. His aircraft must have two-way radio, navigational equipment, and he must make periodic position reports. He must also hit his check points within five minutes of his estimated time, and he must remain within 20 miles of the course centerline on over-water flights. Failure to do so means possible interception. The clearance procedure provides the pilot with an instant guide, if he manages to get lost in the military zone.

With an alert Air Force guarding the aerial aproaches to the U.S., general aviation pilots flying over coastal waters can save themselves a great deal of personal embarrassment, and the possibility of having a serious run-in with the FAA, by becoming familiar with FAR Part 99, SFAR 15, and the Airman's Information Manual, Parts 1 and 3. They can also contribute to the national defense by easing the burden on U.S. fighter pilots. ■

F-104 Starfighter pilot will streak to his rendezvous with ADIZ trespasser at 1,400 mph, making evasion highly unlikely.

At his work desk in a Baltimore skyscraper apartment Mr. Adler continues his study of pilot warning lights.

MR. Anti-Collision

Charles Adler, Jr. has devoted a lifetime to the invention of collision warning devices.

In a Baltimore skyscraper laboratory a gentleman who has been inventing devices to prevent traffic collisions for more than half a century is busy at work on his latest idea—a practical collision warning system for aircraft.

Charles Adler, Jr., inherited an interest in saving lives from his father, a prominent physician, but his particular talents were directed toward preventing human beings from crashing into each other in the mechanical conveyances which the 20th century era of speed was making popular. Train, automobile and aircraft users have all benefited from Adler's lifelong pioneering in the field of anti-collision. The aircraft industry is especially indebted to him for the so-called Grimes Light or rotating beacon, in use in more than half of the airplanes in the United States.

Adler's first invention, in 1914, at age 14, was an electrical brake for his father's Packard. In 1920, after two years of electrical engineering studies at John Hopkins University, Adler decided to do something about the new hazard of automobile-train crashes: he invented the first train-actuated R.R. crossing signal. A grateful railroad executive then provided him with a workshop in Baltimore's Mount Royal Station, with the opportunity to invent to his heart's content.

50 Anti-Collision Devices

In the years that followed, more than 50 life-saving inventions were patented by Charles Adler, who made it a habit to donate his patents to the U.S. Government whenever widespread human benefits were involved. In the Twenties, he was preoccupied with automobile traffic problems. In 1928 he produced the first traffic-actuated light signal to prove functional in daily use. In 1933, he invented a traffic light for the color blind—employing a horizontal stripe in the red lens, a vertical stripe in the green lens, and a diagonal one in the amber light.

In that same year his concern with signal failure, due to burned-out filaments, led him to invent the fail-safe double filament lamp.

Adler moved into the aircraft field in 1939, when airplane traffic was just beginning to pose a problem. He became acquainted with the problem abruptly, soon after he received his pilot's certificate at age 41, when he was forced to dive his light plane hastily to avoid a transport plane. The flying experience prompted him to concentrate on a means of positively distinguishing other aircraft, for he quickly recognized that even in broad daylight moving aircraft could be hidden from a pilot's gaze by the glare of sunlight, irregular landscape, haze, clouds, etc.

The standard external lighting on aircraft in this period was essentially an extension of marine lighting—a steady green light on the right wing, a red light on the left wing, and a white light on the tail. Seen against the background of vari-colored city lights at night, the red, green, and white pattern was often of little help in determining course or position of another aircraft.

After discussing the problem with the Civil Aeronautics Administration in Washington, D.C., Charlie Adler was given a challenge: could he invent a light that a pilot could recognize instantly as different from all other lights?

Flashing Light Circuit

He could and he did. With the simplicity that only genius can claim, he merely added a red light directly above the white tail light and wired a flashing cycle, red-dark-white-dark-red, etc. The red and green wing tip lights were included in the flashing circuit, so that from every point around the aircraft a distinctive flashing sequence was displayed. After enthusiastic acceptance by Federal authorities, two-circuit flashing navigation lights became standard throughout the world, on military as well as civilian aircraft.

Adler later decided that a rotating flashing light within a cover glass would be even more effective in attracting attention, and when he had perfected this device, aircraft went back to using steady burning lights on the wing tips and tail to indicate the horizontal direction.

With the ever increasing growth in air traffic, and the demand for an anti-collision device that would instantly inform the pilot of the course of another aircraft with respect to his own, Charlie Adler invented a proximity warning indicator, in 1948, and donated the patent to the U.S. Government. In 1961 he developed a system of exterior warning lights to inform pilots about the vertical course of other aircraft—the "height light". The height light employs three rotary beacons, colored red, green and yellow—all linked to the rate of climb indicator and the altimeter.

The climb indicator energizes the red light when the aircraft is ascending, and the yellow light when descending. On a level flight, at odd altitudes, the altimeter causes all three lights to flash. At even altitudes, only the green and yellow are lit. Thus, one flashing light immediately indicates that a change of altitude is in progress, red for up and yellow for down; and two or three flashing lights spell out even or odd cruising altitudes.

The height light is one of several recent important developments in anti-collision devices which the Federal Aviation Administration is studying in connection with the problem of cockpit disorientation, which has been associated with a number of accidents both in general aviation and air carrier flying. It is one of the least costly of the current proposals in this field.

Unusual Inventions

Although lighting devices have been Adler's special field, he has invented such unusual devices as a "spaceometer", a panel instrument for automobiles which reads out the safe distance to be maintained from the car ahead (activated by the speedometer); and a horn for airplanes to warn others to keep clear of an aircraft being started up, or taxied in a congested area.

The horn has not been widely accepted, but Adler took a great personal satisfaction, during his flying days, in using it to signal the kind of eggs he wanted for breakfast, when returning from an early morning flight.

Of the dozens of awards that have been showered on Charlie Adler over his half century of life-saving inventiveness, nothing gives him more pleasure than the statement from the Civil Aeronautics Administration in 1953, which asserts . . . ". . . through his unselfish efforts and his donation to the people of the United States of basic patents covering flashing lights, the hazard of air collision has been materially reduced." ■

BRIEFS

• MINUTES OF THE PILOT WARNING INSTRUMENT (PWI) symposium held in December, co-hosted by FAA and the Collision Prevention Advisory Group will go out to participants in late February. Minutes include views of the various airspace user groups on PWI performance characteristics and a resume of the question and answer session. Interested participants are invited to comment on the value and effectiveness of the symposium.

• FAA HAS AMENDED FAR-141—Pilot Schools—to permit wider latitude in the kinds of flight training available under the Veterans' Pension and Readjustment Assistance Act of 1967. The amendment, effective Dec. 13, 1967, provides for courses leading to additional aircraft ratings, and pilot proficiency in such specialties as agricultural flying and special operations involving external loads on helicopters. Eligible veterans must have a valid private pilot certificate, or have satisfactorily completed the number of hours of flight training required,and have at least a second-class medical certificate. Flight school courses must meet FAA standards and be approved by the FAA and the appropriate State agency. Veterans Administration officals urge eligible veterans to direct their inquiries to their regional VA contact offices.

• PILOTS, CONTROLLERS, AND OTHERS reporting involvement in near midair collisions can do so without fear of punitive or other adverse actions in 1968 while the FAA takes a year-long look at near midairs, their frequency and likely causes. FAA Administrator William F. McKee is authorized to grant this immunity under his statutory mandate to promote safety in flight. In addition, the Administrator will withhold the report, and the identity of those persons involved, from public disclosure if the reporter requests this in writing. The idea is to stimulate full and frank disclosure of all incidents, a necessary ingredient if the study is to produce the desired results—increased air safety through the development of air traffic control procedures, separation criteria, and FARs.

• THE SST IS SPORTING A "NEW LOOK" that includes a canard wing near the front of the fuselage, a single-hinge nose incorporating a movable visor (replaces the earlier double-hinge vision), provisions for using the wing spoilers for direct lift control, "tailored" engine inlets, re-arrangement of passenger doors, and increased length, from 306 feet to 318 feet overall. This last refinement has decreased drag, and has improved effectiveness of the vertical stabilizer, rudder and ventral fin by moving them rearward.

GENERAL AVIATION FLYING SOARS TO NEW HEIGHTS

ESTIMATED GENERAL AVIATION DATA
C. Y. 1966

Hours Flown	1966 Hours (000)	%	1966 Miles (000)	%	1965 Hours (000)	%	1965 Miles (000)	%
Total	21,023	100	3,336,138	100	16,733	100	2,562,380	100
BUSINESS	7,057	33	1,536,158	46	5,857	35	1,204,321	47
COMMERCIAL	3,555	17	515,730	16	3,348	20	461,228	18
INSTRUCTIONAL	5,674	27	646,169	19	3,346	20	358,733	14
PERSONAL	4,540	22	605,912	18	4,016	24	512,476	20
OTHER	197	1	32,169	1	166	1	25,622	1

Fuel Consumed	1966 (000) gallons	1965 (000) gallons	Annual Change
GASOLINE	374,610	291,841	+28
JET FUEL	137,278	81,277	+69
OIL	5,739	4,554	+26

TOTAL AIRCRAFT	1966	1965
(All Types)	104,706	95,442

While a private survey firm was busy compiling figures that predicted some 240,000 aircraft worth about $96.6 billion would be produced in the next decade, U. S. general aviation pilots were setting new records flying in the here and now.

In 1966 they took to the air in 104,706 airplanes, flew 3.3 billion miles in 21 million hours aloft, and burned 512 million gallons of gasoline and jet fuels.

These were the findings of down-to-earth FAA statisticians when they closed the the books on calendar year 1966.

It was up all the way: a 10 per cent increase in the number of general aviation aircraft over the 95,442 reported in 1965 is the largest yearly increase since 1946; in 1966 there was a record 30 per cent increase of miles flown, and a climb of 26 per cent in flying hours.

While admitting there is no way of proving it, the FAA tabulators suggest that part of the unprecedented surge in general aviation might be attributed to the 41-day airline strike in 1966. The supposition appears to be firmly grounded—business flying remained the most active segment of general aviation, accounting for 33 per cent of the total hours (7.1 million) flown and 46 per cent of the total miles (1.5 billion).

Fledgling pilots, and those seeking advanced ratings, made flight instruction the second busiest activity in general aviation. The trainees claimed 27 per cent of the hours flown, and 19 per cent of the miles. Not far behind were the thousands who fly for fun. They accounted for 22 per cent of the hours and 18 per cent of the miles.

Commercial general aviation pilots (air taxi, charter, agriculutral, etc.) were almost as busy. They flew 17 per cent of the hours and 16 per cent of the miles.

Soviet Airliner and Crew Prepare for U.S., Russia Service

Aeroflot stewardess Lara Ruznerava, shown in her galley aboard the IL-62, latest Russian four-engine commercial air carrier. Soviet aviation officials flew to Washington late last year to participate in technical discussions with U. S. authorities regarding scheduled airline service between New York and Moscow. While in the U. S., the Russian plane and crew underwent successful FAA proving flights, including approach landings and takeoffs at J. F. Kennedy, Philadelphia and Dulles International Airports. Aeroflot hopes to commence flying the 186-passenger, fan jet to JFK when remaining formalities are completed, perhaps early this year. Pan American will operate a weekly N.Y.-Moscow flight as part of the reciprocal agreement.

Periodic Flight Instruction, Proficiency Check Proposed

A regulation that would require general aviation pilots to take periodic flight instruction, or proficiency checks, is now under consideration by the Federal Aviation Administration.

FAA has published an advance notice of Proposed Rule Making, inviting the aviation community to participate in the formulation of requirements aimed at preventing the deterioration of basic airman skills.

An FAA review of accident records indicated that many accidents were due to the pilots' lack of current flying experience and failure to keep abreast of new developments and operational procedures.

With regard to the proposed periodic flight instruction, FAA is considering which pilot certificate holders should be affected; how many hours of instruction, and how often; and what should be included in the instruction.

Regarding proficiency checks, FAA has not yet determined what category of pilots should receive the checks, who should give them and how often, and whether work in simulators would be acceptable.

Comments in the advance notice (67-56, Docket 6814) should be submitted in duplicate to FAA, Office of General Counsel, Attention: Rules Docket, GC-24, 800 Independence Avenue, S.W., Wash., D. C. 20590. The deadline is April 1, 1968.

Airport Control Zone Roof Asked

Airport control ceilings, which now have no limit, will get a 14,500-foot ceiling if a proposal by the FAA is adopted. This will coincide with the floor of the continental control area, eliminating an ambiguous situation where airport control zones extend up and through other controlled airspace.

FAA contends that using the base of the continental control area as the upper limit of airport control zones would also eliminate the unnecessary duplication of controlled airspace at higher levels.

Comments on the proposed rule (Notice No. 67-50, Docket No. 8562) should be submitted in duplicate to the FAA's Office of General Counsel, ATTN: Rules Docket, 800 Independence Ave., S.W. Washington, D. C. 20590. Deadline is Feb. 5, 1968.

SPECIAL VFR STILL PENDING

No final decision has yet been made on FAA's proposal to end special VFR clearances. Although the docket for comment on this proposal closed on December 18, 1967, the announcement in January FAA AVIATION NEWS that special VFR had been terminated was incorrect. An announcement from FAA will be made in the near future.

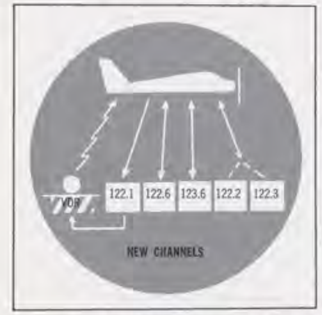
FAA Aviation News welcomes comments from the aviation community. We will reserve this page for an exchange of views. No anonymous letters will be used, but names will be withheld on request.

• Alaska Radio Frequencies

In "New FSS Radio Channel" in the November FAA Aviation News you listed VHF frequency 122.1 under the new channels as a receive-only frequency. Aren't you referring to 122.2? Frequency 122.1 was changed to simplex here in Alaska within the past year.

Under the new frequency alignment will 122.1 remain a simplex frequency, or will it return to a split between 122.1 and 122.2?

Alaska



In Alaska, 122.1 MHz will remain a simplex and not revert to dual channel operations. The other Alaska FSS channel, 126.7 MHz, will be changed to 123.6 MHz in the near future. Elsewhere 122.1 will continue as a receive only channel while 122.2 will be deleted.

• Twins Are No Problem

We are an FAA-certificated flight training school with the following ratings: basic and advanced ground school, airplane, instrument flying school and flight instructor school.

Are we authorized to use multi-engine aircraft in any of the above listed ratings? If so, please specify which.

Houma, La.

FAR Part 141 does not forbid the use of twin engine airplanes in any approved training curriculum for which an airplane's performance characteristics and equipment are appropriate. An operator may use a twin engine aircraft in any pilot training course for which the school has received approval from the FAA in a curriculum based on the use of such flight equipment.

• Foolproof Checklist

For some time I have been concerned about the possibility of checklist errors which could result in hazardous situations such as described in "The Prevailing Cause" in the September Aviation News.

I would think there could be a way of providing an "electronic checklist" for each type of aircraft that would prevent engine starting unless the following conditions were met: a) mixture—rich; b) carburetor heat—off; c) fuel pump—on; d) trim—takeoffs; e) controls—free; f) gas on top tank; g) flaps—takeoff, etc.

Cleveland

Many large aircraft have a modified form of an "electronic checklist" known as an annunciator. It provides the pilot with a visual warning of certain conditions that could develop.

Your suggestion of a prestart electronic checklist that would prevent starting if all checklist items have not been completed has interesting possibilities. However, the complexity of the electronic wiring and backup systems needed to insure reliability on the ground and in the air would represent a sizeable investment by the manufacturer and consumer.

Nevertheless, FAA will continue to encourage, industry research and development of such safety devices.

• Seeks Guiding Light

Maybe it's my age—60—and the fact that I'm a student pilot, but I'm having trouble keeping my wings level with the horizon. Bank angles also give me trouble.

Has anyone ever used the idea of shining two high intensity lights focused on a small spot on the propeller blades so that they would be parallel to the wings? These two reflections would appear like two suspended guide points for reference to the horizon.

Cleveland

Operating conditions during bright daylight would require extremely powerful lights for effective perception, most of which would shine through the propeller disk. FAA engineers who evaluated the proposal said the additional visual attitude aid is considered insignificant to the normally perceptive pilot flying VFR. Similar suggestions in the past, involving marking the windshield with a grease pencil, or other markers, have not proved practical.

• WW II Pilot Seeks Ancient Steed

As a former liaison pilot who flew a Stinson L-1, evacuating wounded in Burma in World War II, I often wonder what happened to all of them when the shooting stopped. Were they sent back to the States? Or were they sold overseas as surplus.

I'm interested in buying one but as far as I've been able to find out, there are only five of them listed in the U. S. Civil Aircraft Register, and three of these are in Alaska. None are for sale.

Leo J. Carroll
1315 W. Seminary Ave.
Bloomington, Ill. 61701

Most military aircraft, especially light planes like the L-1, were disposed of overseas in a variety of ways, including donation or sale to allies. You might try writing to: Commander, Military Aircraft Storage and Disposition Center, Davis-Monthan AFB, Tucson, Ariz., to see if the military still have any available for sale. It's not very likely they do. Also, you might write to "Trade-A-Plane", Crossville, Tenn., a monthly newspaper which specializes in aircraft sales. Perhaps our readers can help.

• New Sectionals Lose Him

The new sectional maps are a waste of time and money, as well as inconvenient. If a pilot is plotting a course on one side only, the other side of the map is wasted, but has contributed to increasing its cost.

Also, I don't see how anyone can draw a straight line from one side of a map to its own back side. Therefore, two separate maps are needed—double the cost.

If a way were found to accurately plot a course from one side to the other, it would still be inconvenient in flight to unfold in a small cabin, and then refold it to use the other side. We are back to two maps again.

There is no overlap on the new maps, a great inconvenience, since it is customary to fly to a point near the edge which is identified, and then switch maps. With the new maps this is impossible, as one ends exactly where the other begins.

Finally, the information on the back of the old maps, as well as the details on airports and restricted areas, was of great importance and handy to use.

Woodmere, N. Y.

While each individual chart of the new series of 37 sectional aeronautical charts costs more, the area covered by each is more than twice that covered by the 87 charts in any one of the old series.

The south border of the new charts carries a simple explanation for plotting a direct course from front to back. Overlapping coverage on adjoining charts is in fact provided on the new charts, although this may not be readily apparent until adjoining charts are laid out border to border.

The unique 4 x 10 5/16 inch fold is designed for rapid switch-over from front to back, providing uninterrupted navigation information along any route. A little practice in the cockpit on the ground helps.

Basic supplemental data printed on the back of the old sectionals, such as index, legend, special-use airspace, tower frequencies, etc., is carried within the panels and border areas of the new charts. The remaining data is provided in the Airman's Information Manual.

• Taking Aim

"AIM: A Book Club for Pilots" in the December 1967 Aviation News, describing the Airman's Information Manual, was good reading, but I could not find the address of the publisher. Do I send my check to FAA?

Scranton, Pa.

No, indeed. Checks or money orders should be made out to: Superintendent of Documents, Government Printing Office, Washington, D. C. 20402. Domestic subscription is $13, add $3.25 for foreign addresses.

The Pacific Airman's Guide and Chart Supplement, and the Alaska Airman's Guide and Chart Supplement are available for $12 per year from: Distribution Division, C-44, Coast and Geodetic Survey (ESSA) Rockville, Md., 20852.

FEDERAL AVIATION ADMINISTRATION
DEPARTMENT OF TRANSPORTATION
WASHINGTON, D. C. 20590

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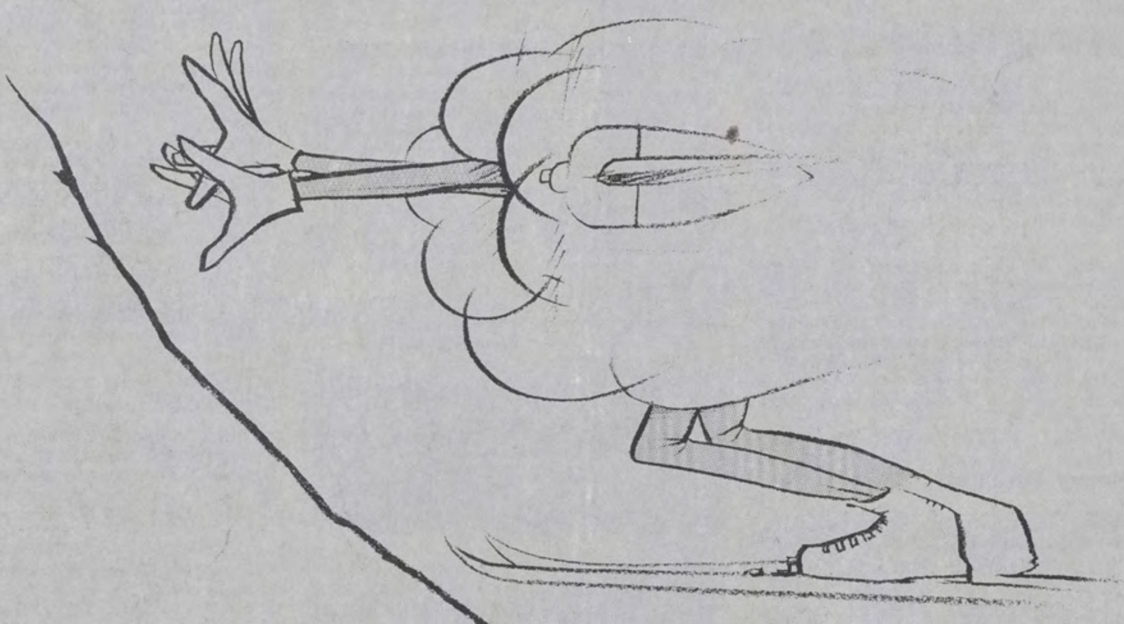
Too much haste to put the skis on



Could spoil a pilot's winter season